**Pre-Calculus**

* 1. **Notes**

**Day 3**

1. **Introduction to functions**

* Definition: a function is a rule of correspondence that guarantees for each x a unique y exists.
* Domain: set of 1st coordinates; \_\_ values
* Range: set of 2nd coordinates; \_\_ values

**Ex. 1:** Which ones are functions? Why?

A = {(a, 2), (b, 3), (c, 4)}

B = {(1, 2), (2, 2), (3, 4)}

C = {(0, 5), (1, 3), (2, 15), (1, 4)}

List domain and range of set B.

Domain: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Range:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**4 ways to represent a function:**

1. Verbally by a sentence
2. **N**umerically by a table
3. **A**lgebraically by an equation
4. **G**raphically by points on a graph

Given: y = x2

* y is a function of x.
* x is the ­­­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ variable.
* y is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ variable.

**Ex. 2:**  Do these equations represent y as a function of x? (Solve for y in terms of x.)

1. x2 + y = 1
2. –x + y2 = 1
3. **Function notation**

* y = f(x)
* This is function notation introduced by Euler (pronounced “oiler”)

**Ex. 3:** Let g(x) = -x2 + 4x + 1; find…

1. g(2)
2. g(x + 2)

A piecewise-defined function is defined by 2 or more equations over a specified domain.

**Ex. 4:** f(x) =

Find…

1. f(-1) =
2. f(0) =
3. f(1) =
4. **The domain of a function**

**Ex. 5:** Find the domain.

1. f: {(-3, 0), (-1, 4), (2, 2)}
2. g(x) =
3. Volume of a sphere: V =
4. h(x) =
5. **Applications**

**Ex. 6:** page 32 Ratio of height to radius is 4.

1. Volume of the can as a function of the radius:

V =

1. Volume of can as a function of the height.

V

